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EXAMINER

PATEL, SHEFALI D

ART UNIT

PAPER NUMBER

2621

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/711,956	<b>Applicant(s)</b> MIYAKE, NOBUTAKA	
	<b>Examiner</b> Shefali D. Patel	<b>Art Unit</b> 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 43 and 44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. Request for reconsideration filed on January 4, 2005 has been considered and made of record.
2. Claims 1-42 stand pending and Claims 43-44 have been withdrawn in this application.

### *Response to Arguments*

3. Applicant's arguments, see Remarks on pages 2-5, filed on January 4, 2005, with respect to the rejection(s) of claim(s) 1-40 under 35 U.S.C. 103(a) have been fully considered and are persuasive.

Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Nakamura et al. and Shu.

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 9, 21-24, 29, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (hereinafter, "Nakamura") ("A Unified Coding Method of Dithered Image and Text Data Using Micropatterns," IEEE, 1989) in view of Shu (US 5,592,592).

With regard to claim 1 Nakamura discloses an image processing apparatus which embeds predetermined information in an image (page 50 col. 1 last paragraph continuing on col. 2), apparatus comprising: input means for entering the image (image has already been inputted for further processing); division means for dividing the entered image into plural image areas (Figure 1, page 50 section 2); pseudo gradation process means for quantizing the image areas divided by said division means (Figure 1, page 51 col. 1 paragraph 1 and section 3, page 53 section 5); and control means for controlling, in a unit of the image area, the quantization condition by said pseudo gradation process means according to the

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predetermined information on the image output as the print (page 51 section 51, See Figures 2 and 7).

Nakamura does not expressly disclose utilizing error diffusion method. Shu discloses error diffusion on col. 14 and on. Nakamura and Shu are combinable because they are from the same field of endeavor, i.e., quantization process. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Shu with Nakamura. The motivation for doing so is to reduce the visual distortion created by the halftoning process in the reproduced image as suggested by Shu at col. 2 lines 48-57. Therefore, it would have been obvious to combine Shu with Nakamura to obtain the invention as specified in claim 1. Also, note, Shu discloses a printer device 114, Figure 1.

With regard to **claim 2** Shu discloses quantization condition that is a quantization threshold value (col. 18 lines 10-20).

With regard to **claim 3** Shu discloses quantization condition changes the quantization threshold value based on a predetermined period (col. 18 lines 10-22).

With regard to **claim 4** Shu discloses control means switches the predetermined period for changing the quantization threshold value in the unit of said image area (control means thru buffer control 510, Figure 5).

With regard to **claim 9** it is inherent that the information embedded in the image is done in such a manner not easily visible to a human eye.

**Claim 21** recites identical features as claim 1 except claim 21 is a method claim. Thus, arguments similar to that presented above for claim 1 is equally applicable to claim 21.

**Claim 22** recites identical features as claim 2 except claim 22 is a method claim. Thus, arguments similar to that presented above for claim 2 is equally applicable to claim 22.

**Claim 23** recites identical features as claim 3 except claim 23 is a method claim. Thus, arguments similar to that presented above for claim 3 is equally applicable to claim 23.

**Claim 24** recites identical features as claim 4 except claim 24 is a method claim. Thus, arguments similar to that presented above for claim 4 is equally applicable to claim 24.

**Claim 29** recites identical features as claim 9 except claim 29 is a method claim. Thus, arguments similar to that presented above for claim 9 is equally applicable to claim 29.

**Claim 41** recites identical features as claim 1 except claim 41 is a computer readable memory medium claim. Thus, arguments similar to that presented above for claim 1 is equally applicable to claim 41. Applicant's attention is invited to col. 63 lines 9-14 of Inoue for a computer readable memory medium.

6. Claims 5-6, 8, 10-16, 19-20, 25-26, 28, 30-36, 39-40, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (hereinafter, "Nakamura") ("A Unified Coding Method of Dithered Image and Text Data Using Micropatterns," IEEE, 1989) in view of Shu (US 5,592,592) as applied to claims 1-4, 9, 21-24, 29, and 41 above, and further in view of Inoue et al. (USPN 6,477,276) (hereinafter, "Inoue").

With regard to **claim 5** Nakamura in view of Shu discloses an image processing apparatus as disclosed above in claim 4 and the arguments are not repeated herein, but are incorporated by reference. Nakamura in view of Shu does not expressly disclose the limitations of claim 5. Inoue discloses an image processing apparatus wherein the control means that switches the period in a horizontal direction and the period in a vertical direction for changing the quantization threshold value in the unit of the image area. (As clearly seen in Figure 21(b) that the period is in the horizontal and vertical direction for block HL3, col. 53 lines 65-67 to col. 54 lines 1-6). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Inoue with Nakamura and Shu. The motivation for doing so is to map information of a size corresponding to the transform coefficient in the

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signal (i.e., image) as suggested by Inoue at col. 54 lines 1-6. Therefore, it would have been obvious to combine Inoue with Nakamura and Shu to obtain the invention as specified in claim 5.

With regard to **claim 6** Inoue discloses plural kinds of the predetermined periods (i.e., horizontal and vertical) and switches the predetermined period in the unit of the image area (as clearly seen in Figs. 21(a) and 21(b)).

With regard to **claim 8** Inoue discloses predetermined information being related to a copyright of the image (See, col. 39 lines 11-14).

With regard to **claim 10** Nakamura in view of Shu discloses an image processing apparatus as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Nakamura in view of Shu does not expressly disclose the limitations of claim 10. Inoue discloses an image processing apparatus which extracts the predetermined information (See, col. 48 lines 45-47) from the image in which the predetermined information has been embedded (See, col. 46 lines 50-67), the apparatus comprising: input means for entering the image (signal 71 in Fig. 11 is the input means which inputs the image (here the image is being entered) in the system. Col. 45 lines 66-67); transformation means (transformation means 31, col. 48 lines 51-52.) for executing frequency transformation on the image areas divided by said division means (image that is divided by division as explained in claim 1 which was first divided into different frequency bands as described in Figs. 33-35); classification means (i.e., judgment portion 22, col. 48 line 53) for classifying the image areas into plural classes based on the transformation process of said transformation means (the judgment portion 22 classifies the image based on the quantization value which was obtained thru the process of transformation and quantization means, col. 43 lines 53-57); and extraction means for extracting the predetermined information, based on a feature amount of each class thus classified (extracting means 2b in Fig. 15, col. 48 lines 43-53). Nakamura, Shu and Inoue are combinable because they are from the same field of endeavor, Image Processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the

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art to combine the teaching of Inoue with Nakamura and Shu. The motivation for doing so is to extract the information in order to clarify the information embedded as suggested by Inoue at col. 48 lines 43-53. Therefore, it would have been obvious to combine Inoue with Nakamura and Shu to obtain the invention as specified in claim 10.

With regard to **claim 11** Inoue discloses an orthogonal transformation 31 at col. 48 lines 51-52.

With regard to **claim 12** Inoue discloses comparison means (comparison means included in judgment portion, col. 61 lines 5-7) for comparing the feature amount of the classified classes (amount of the classified classes are compared which is obtained after the error calculation portion 65 after the transformation, col. 60 lines 37-45); wherein said extraction means extracts said predetermined information based on the result of comparison by said comparison means (See, col. 61 lines 25-35).

With regard to **claim 13** Inoue discloses evaluation means for evaluating result of evaluation (as a prior art, Inoue discloses evaluating the image using three dividing filters, see col. 1 lines 60-67, also see Fig. 21(a) part LL1, LH1, HL1, and HH1.); and re-division means for executing again the division process of said division means, based on the result of evaluation by said evaluation means (re-division on each of the evaluation part into image signal 71 representing at col. 2 lines 4-19, Fig. 21(a) part LL1, LH2, HL2, HH2, etc.).

With regard to **claim 14** Inoue discloses re-division means executing division again by changing the dividing position of the division (position of the division changed from the entire block seen in Fig. 21 to within the block LL1).

With regard to **claim 15** Inoue discloses re-division means executing division again by changing the size of division (the size of the division is changing as seen in Fig. 21. Size of LH2 is different than size of LH3, etc.).

With regard to **claim 16** Inoue discloses feature amount being an absolute value of coefficients of transformation by said transformation means (See, col. 57 lines 59-61).

With regard to **claim 19** Inoue discloses predetermined information being related to a copyright of the image (See, col. 39 lines 11-14).

With regard to **claim 20** it is inherent that the information embedded in the image is done in such a manner not easily visible to a human eye.

**Claim 25** recites identical features as claim 5 except claim 25 is a method claim. Thus, arguments similar to that presented above for claim 5 is equally applicable to claim 25.

**Claim 26** recites identical features as claim 6 except claim 26 is a method claim. Thus, arguments similar to that presented above for claim 6 is equally applicable to claim 26.

**Claim 28** recites identical features as claim 8 except claim 28 is a method claim. Thus, arguments similar to that presented above for claim 8 is equally applicable to claim 28.

**Claim 30** recites identical features as claim 10 except claim 30 is a method claim. Thus, arguments similar to that presented above for claim 10 is equally applicable to claim 30.

**Claim 31** recites identical features as claim 11 except claim 31 is a method claim. Thus, arguments similar to that presented above for claim 11 is equally applicable to claim 31.

**Claim 32** recites identical features as claim 12 except claim 32 is a method claim. Thus, arguments similar to that presented above for claim 12 is equally applicable to claim 32.

**Claim 33** recites identical features as claim 13 except claim 33 is a method claim. Thus, arguments similar to that presented above for claim 13 is equally applicable to claim 33.

**Claim 34** recites identical features as claim 14 except claim 34 is a method claim. Thus, arguments similar to that presented above for claim 14 is equally applicable to claim 34.

**Claim 35** recites identical features as claim 15 except claim 35 is a method claim. Thus, arguments similar to that presented above for claim 15 is equally applicable to claim 35.

**Claim 36** recites identical features as claim 16 except claim 36 is a method claim. Thus, arguments similar to that presented above for claim 16 is equally applicable to claim 36.



**Claim 39** recites identical features as claim 19 except claim 39 is a method claim. Thus, arguments similar to that presented above for claim 19 is equally applicable to claim 39.

**Claim 40** recites identical features as claim 20 except claim 40 is a method claim. Thus, arguments similar to that presented above for claim 20 is equally applicable to claim 40.

**Claim 42** recites identical features as claim 10 except claim 42 is a computer readable memory medium claim. Thus, arguments similar to that presented above for claim 10 is equally applicable to claim 42. Applicant's attention is invited to col. 63 lines 9-14 of Inoue for a computer readable memory medium.

7. Claims 7 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (hereinafter, "Nakamura") ("A Unified Coding Method of Dithered Image and Text Data Using Micropatterns," IEEE, 1989) in view of Shu (US 5,592,592) as applied to claims 1-4, 9, 21-24, 29, and 41 above, and further in view of Hayashi, et al. (USPN 6,535,616) (hereinafter, "Hayashi").

With regard to **claim 7** Nakamura in view of Shu discloses an image processing apparatus as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Nakamura in view of Shu does not expressly disclose the limitations of claim 7. Hayashi discloses predetermined information being audio information (see, col. 24 lines 35-47). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Hayashi with Nakamura and Shu. The motivation for doing so is to determine the embedding position according to a medium range frequency component and to embed watermark information in a low or high range frequency component as suggested by Hayashi at col. 24 lines 42-47. Therefore, it would have been obvious to combine Hayashi with Nakamura and Shu to obtain the invention as specified in claim 7.

**Claim 27** recites identical features as claim 7 except claim 27 is a method claim. Thus, arguments similar to that presented above for claim 7 is equally applicable to claim 27.

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8. Claims 18 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (hereinafter, "Nakamura") ("A Unified Coding Method of Dithered Image and Text Data Using Micropatterns," IEEE, 1989) in view of Shu (US 5,592,592) in view of Inoue et al. (USPN 6,477,276) (hereinafter, "Inoue") as applied to claims 5-6, 8, 10-16, 19-20, 25-26, 28, 30-36, 39-40, and 42 and further in view of Hayashi, et al. (USPN 6,535,616) (hereinafter, "Hayashi").

**Claim 18** recites identical features as claim 7 except claim 18 is apparatus for extracting claim depending on claim 10 instead of claim 1. Thus, arguments and the motivation similar to that presented above for claim 7 is equally applicable to claim 18.

**Claim 38** recites identical features as claim 18 except claim 38 is a method for extracting claim. Thus, arguments similar to that presented above for claim 18 is equally applicable to claim 38.

9. Claims 17 and 37 rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (hereinafter, "Nakamura") ("A Unified Coding Method of Dithered Image and Text Data Using Micropatterns," IEEE, 1989) in view of Shu (US 5,592,592) in view of Inoue et al. (USPN 6,477,276) (hereinafter, "Inoue") as applied to claims 5-6, 8, 10-16, 19-20, 25-26, 28, 30-36, 39-40, and 42, and further in view of Yuan, et al. (USPN 5,821,986) (hereinafter, "Yuan").

With regard to **claim 17** Nakamura in view of Shu (as modified by Inoue) discloses a feature amount as described in claim 10 and all of the claimed subject matter as already discussed above and the arguments are not repeated herein, but are incorporated by reference. Nakamura, Shu and Inoue does not expressly disclose the feature amount being electric power. Yuan discloses the feature amount being electric power (see, col. 6 lines 54-59). Nakamura, Shu and Inoue and Yuan are combinable because they are from the same field of endeavor, i.e., encoding/decoding the image. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Yuan with Nakamura, Shu and Inoue. The motivation for doing so is that Yuan suggests at col. 6 lines 54-59 that for

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faster calculation with less time computation power, this feature allows for communication for decoding reasons. Therefore, it would have been obvious to combine Yuan with Nakamura, Shu and Inoue to obtain the invention as specified in claim 17.

**Claim 37** recites identical features as claim 17 except claim 37 is a method for extracting claim. Thus, arguments similar to that presented above for claim 17 is equally applicable to claim 37.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D. Patel whose telephone number is 571-272-7396. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

July 6, 2005

Shefali D Patel  
Examiner  
Art Unit 2621

*supv*  
JOSEPH MANCUSO  
PRIMARY EXAMINER